

Smart Multifunction Toilet Wheelchair

This technology offers a smart multifunctional wheelchair system for wheelchair users to have safe and easy use in public restrooms. This system includes an input user interface, sensors, transforming mechanism, and control units with voice recognition.

What is the Problem?

An estimated 75 million people or approximately 1% of the world's population are wheelchair users. Specifically, as of 2016, approximately 3.6 million people (roughly 1.2% of the US population) require the use of a wheelchair. For wheelchair users, using the restroom is inconvenient, physically stressful, and dangerous. Much of the time, wheelchair users need to haul themselves out of their wheelchair in order to move onto the toilet, with accidents and injuries being common. According to the FDA, 73% of cases of such accidents resulted from falls and tips during this process. Thus, many wheelchair users choose not to use public toilet facilities out of fear of embarrassment.

What is the Solution?

The solution is a smart multifunction wheelchair system for safe and easy use of public restrooms for wheelchair users. This can be automatically transformed from a normal wheelchair to a roll-over-toilet design so that it can be used in normal toilet stalls in public restrooms. The wheelchair system includes an input user interface system, a sensor/measurement system, transforming mechanism, and a control unit. The wheelchair system controls can include any traditional user interface such as a joystick or voice recognition module. The measurement system collects preliminary information of the environment and locates (aligns) the wheelchair. An electrical jack lift system is used to safely lift up the patient's seat vertically while the wheelchair is being rolled over the toilet.

What is the Competitive Advantage?

There are some current approaches that have tried to address this problem. For example, some companies have developed roll-over-toilet designs that have a permanent hole in the wheelchair seat enabling the chair to fit over some standard toilets. However, these are not suitable for long-term daily use due to comfort issues. Additionally, some public restroom toilets are too tall to be used for these roll-over-toilet wheelchairs. This system would allow users to confidently use bathroom stalls, on a comfortable and reliable wheelchair. This system is compatible with most public toilets and is not constrained by variations in height.

Technology ID

BDP 7534

Category

Device/Other
Selection of Available
Technologies

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